

WHAT IS CLAIMED IS:

1. A gas barrier film having an inorganic coating layer formed by the sol-gel method or an organic-inorganic hybrid coating layer formed by the sol-gel method on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower.

2. The gas barrier film according to claim 1 having an organic-inorganic hybrid coating layer formed by the sol-gel method on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower.

3. The gas barrier film according to claim 1 having an inorganic coating layer formed by the sol-gel method and an organic-inorganic hybrid coating layer formed by the sol-gel method on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower.

4. The gas barrier film according to claim 1 having an inorganic thin film layer and an organic-inorganic hybrid coating layer formed by the sol-gel method on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower.

5. The gas barrier film according to claim 4, wherein the inorganic thin film layer is an inorganic coating layer formed by the sol-gel method.

6. The gas barrier film according to claim 1, wherein the base film has a glass transition temperature of 120°C or higher.

7. The gas barrier film according to claim 1, wherein the base film has a glass transition temperature of 150°C or higher.

8. The gas barrier film according to claim 1, wherein

the base film has a linear thermal expansion coefficient of 20 ppm/°C or lower.

9. The gas barrier film according to claim 1, wherein the base film is made of a material selected from the group consisting of polyethylene naphthalate, polycarbonate, cycloolefin polymer, polyallylate and polyethersulfone.

10. The gas barrier film according to claim 1, wherein the base film contains an inorganic layered compound.

11. The gas barrier film according to claim 10, wherein the weight ratio of the inorganic layered compound and a resin contained in the base film is preferably 1/100 to 100/20.

12. The gas barrier film according to claim 10, wherein the inorganic layered compound contains an organic cation.

13. The gas barrier film according to claim 12, wherein the organic cation contains alkylammonium ions containing a long-chain alkyl group.

14. The gas barrier film according to claim 12, wherein the organic cation is contained in an amount of 0.05 to 3 equivalents relative to the cation exchange capacity of the inorganic layered compound.

15. The gas barrier film according to claim 12, wherein the base film has a laminated structure of an inorganic thin film layer and organic-inorganic hybrid coating layer formed by the sol-gel method on the base film.

16. A substrate for a display having the gas barrier film according to Claim 1.

17. A display device having the gas barrier film according to claim 1.

18. An organic electroluminescent device having the gas barrier film according to claim 1.

19. A liquid crystal device having the gas barrier

film according to claim 1.

20. A method for preparing a gas barrier film having an inorganic coating layer or an organic-inorganic hybrid coating layer on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower, which comprises the step of forming the inorganic coating layer on the transparent base film by hydrolizing and polycondensating a metal alkoxide, or the step of forming the organic-inorganic hybrid coating layer on the transparent base film by hydrolizing and polycondensating a metal alkoxide in the presence of a resin.

21. A method for preparing a gas barrier film having an inorganic coating layer and an organic-inorganic hybrid coating layer on a transparent base film having a glass transition temperature of 100°C or higher and a linear thermal expansion coefficient of 40 ppm/°C or lower, which comprises the step of forming the inorganic coating layer on the transparent base film by hydrolizing and polycondensating a metal alkoxide, and the step of forming the organic-inorganic hybrid coating layer on the transparent base film by hydrolizing and polycondensating a metal alkoxide in the presence of a resin.